



Summary of SIA Reply Comments on UTC/Winchester October 21, 2008

SIA MEMBER COMPANIES



No Further Action on the Winchester/UTC Petition is Warranted

- The record demonstrates that the proposed secondary FS use of sole primary Ku-band FSS spectrum would:
 - Create a serious interference threat to primary FSS networks

AND

- Fail to meet the stated service availability requirements of secondary CII users



No Quantified Spectrum Need

UTC Has Failed to Prove that Access to Ku-band Spectrum Is Needed

- UTC admits it does not know:
 - how much spectrum utilities will need,
 - how new communications systems will be deployed, or
 - how the new systems will be integrated with existing networks

(See UTC Reply at 4-5)



No Quantified Spectrum Need

Other Spectrum Is Available for CII Networks

- Winchester/UTC does not justify access to fully occupied Ku-band spectrum when alternative frequencies are available
 - If the sharing techniques proposed for use in the Ku-band are viable, they can be used to implement CII sharing in spectrum already allocated for FS
 - There is no evidence to support the claim that CII use of available spectrum in higher frequency bands (27 GHz, 38 GHz & 71 GHz) would be cost-prohibitive





The Proposed Sharing Is Not Feasible

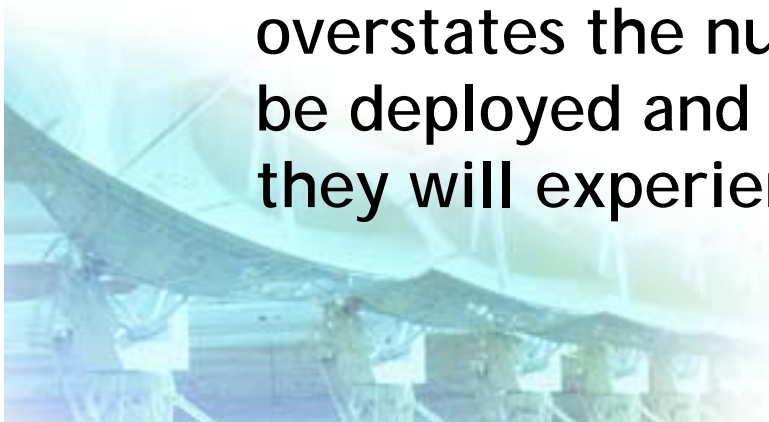
Satellite Entities Are Accustomed to Sharing Spectrum and Know its Effects

- Co-primary FS/FSS sharing in the C-band restricts deployment of both new earth stations and new fixed links
- C-band FS operations pre-dated FSS, so spacecraft in that band were designed to withstand FS interference
- Innovative satellite services have developed in the Ku-band because there is no need to accommodate FS networks
- Massive deployment of FS receivers in 14.0-14.5 GHz is not compatible with the current blanket licensing of FSS earth stations, which is feasible only in bands where FS deployment is very limited or does not exist



Winchester/UTC's Technical Showing Has Fatal Defects

- The technical analysis submitted in support of the Winchester/UTC Petition has serious flaws:
 - The analytical framework is inconsistent with the secondary nature of the proposed FS
 - The operational assumptions are unrealistic
- As a result, Winchester/UTC significantly overstates the number of FS terminals that could be deployed and underestimates the interference they will experience from FSS earth stations





FS Interference Into FSS Uplinks

Winchester/UTC Relies on an Inappropriate Interference Standard

- Winchester/UTC first asserted that a 6% $\Delta T/T$ criterion was consistent with ITU standards, citing a recommendation for co-primary operations
- Winchester/UTC no longer cites to the ITU, but says it “believes” 6% $\Delta T/T$ is a “reasonable” standard
- There is no support in FCC or ITU precedent for Winchester/UTC’s “belief”





FS Interference Into FSS Uplinks

The .5% $\Delta T/T$ Criterion Used in the FSS Analysis is Justified

- If anything, the FSS standard is generous, representing half the allowance for interference from all non-primary sources
- Winchester/UTC's attacks on the FSS standard are misplaced
 - The 3650-3700 MHz proceeding cited dealt with co-primary operations
 - The 14.2-14.4 GHz rules apply to grandfathered operations of a discontinued service



FS Interference Into FSS Uplinks

Use of the Wrong Standard Completely Undermines the Winchester/UTC Analysis

- The co-primary criterion used by Winchester/UTC permits 12 times more interference than the standard used in the FSS analysis, an increase of 10.8 dB
- Winchester/UTC ignores demonstrations that a 6% $\Delta T/T$ increase in interference would interrupt existing Ku-band AMSS operations
- Winchester/UTC also ignores the constraints that would be placed on current and future FSS operations

The Winchester/UTC Analysis Contains Other Serious Defects

- Winchester/UTC assumes that FS transmitters would choose to operate with lower than the permissible maximum transmitter power density and transmitter gain
 - Feasibility of sharing is always based on the maximum power levels of the interfering emission
- Winchester/UTC ignores the cumulative impact of FS interference into the more than 30 spacecraft with Ku-band receive coverage of CONUS





FS Interference Into FSS Uplinks

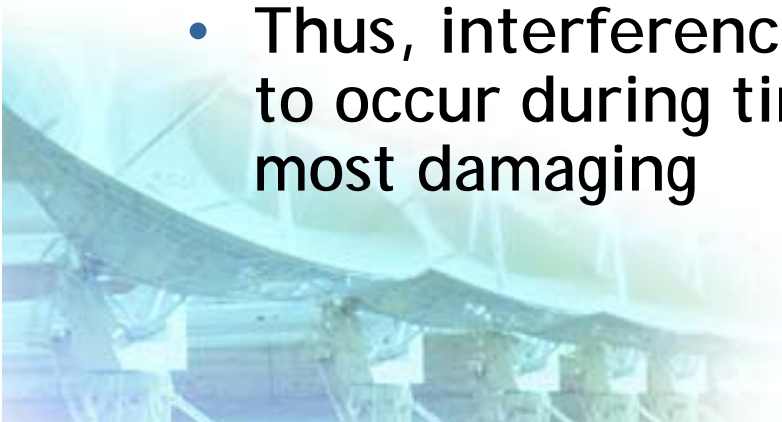
The Proposed Single Licensee Cannot Possibly Prevent or Correct Interference

- SIA demonstrated that interference to space stations from the proposed FS operations would be virtually impossible to pinpoint and remedy
- Winchester/UTC does not explain how its proposed single licensee would identify and address interference arising from:
 - A malfunctioning FS terminal exceeding power limits
 - A mispointed FS terminal
 - The aggregate effect of multiple FS terminals
 - Noncompliant operations by a commercial lessee

FS Interference Into FSS Uplinks

The Impact of Interference Would Be Most Severe in Emergency Situations

- Winchester/UTC contemplates rapid deployment of temporary-fixed terminals in emergencies, almost certainly resulting in non-compliance with pointing accuracy and other technical constraints
- During a crisis, satellite services are essential to provide service continuity and restore outages caused by damage to terrestrial networks
- Thus, interference to FSS operations is most likely to occur during times when its effects would be most damaging



FSS Interference Into FS Terminals

Interference from FSS Would Prevent Achieving CII Reliability Requirements

- Winchester/UTC states that CII users require 99.999% availability
- Winchester/UTC fails to show that this standard, or even a less stringent standard, can be met given interference from ubiquitously deployed FSS operations that include:
 - Wideband VSAT hubs and other fixed earth stations
 - Blanket-licensed VSAT remote terminals
 - ESVs
 - AMSS terminals
 - VMES terminals



FSS Interference Into FS Terminals

Winchester/UTC Relies on Unrealistic Assumptions Regarding FSS Spectrum Use

- Winchester/UTC underestimates wideband FSS operations
- Winchester/UTC's assumptions regarding likely blockage of FSS signals are unsupported and inconsistent with applicable terrain data
- In urban areas with dense FSS terminal deployment, little or no Ku-band spectrum will be available for FS use





FSS Interference Into FS Terminals

CII Users Are Least Likely to Have Reliable Spectrum Access During Emergencies

- Spikes in demand for satellite services in response to an emergency will result in a concentration of satellite terminals in the affected area
- As a result, Ku-band spectrum availability will be lowest during times and in areas where CII interests most need reliable access
- Secondary use of Ku-band spectrum is therefore unsuitable for critical CII requirements - as even some supporters of the Petition recognize

